

A Design Methodology for the Social Sciences

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1. INTRODUCTION

In 1994, four social-science oriented faculties of the University of Twente started a joint five-year research program. The objective of the program is to lay the foundations for a methodology for social scientific design as applicable in various fields of applied social sciences such as communication, management, education, and public administration. The program has been proposed by departments from the four social-science oriented faculties to the 'Research Stimulation Fund' of the University and obtained partial funding of one million Dutch guilders (see appendix A for an over-view of the feasibility studies). The participating faculties are the Faculty of Educational Science and Technology, Faculty of Management Studies, Faculty of Public Administration and Public Policy and the Faculty of Philosophy and Social Sciences.

Each of the participating faculties is interested in professional design activities, as an object of study and/or as a topic for teaching and training students. Over the years, the faculties have developed and conceptualized design methods and approaches. While there are differences because of the wide range of objects of social scientific design activities (e.g. new laws, curricula, brochures or media campaigns, policy), there is also a common emphasis on a stepwise procedure. A general feeling, however, expressed in the literature as well as by practitioners, is that existing design methods and methodology do not really reflect actual best practice.

Thus, there are two related questions: What is best design practice in the several social-science professions? and: how can an adequate methodology be constructed? The purpose of the research program is to closely study and reconstruct design processes in practice, and to develop a design methodology which is better connected to practice. The four faculties will use the findings and experiences also to adapt their design education.

2. BACKGROUND OF THE RESEARCH PROGRAM

Designing is an activity to produce a description, plan, set-up, or pilot which, when implemented, will function and have effects as intended. The research program focuses on professional design activities and thus studies design practices in which professional practitioners do a recognized job, and a job for which social-scientific knowledge and insight is important.

Professional practitioners, e.g. in educational science and public administration, have articulated design methodologies, to summarize and transfer their experiences, as well as with prescriptive intention, to improve practices. Such methodologies tend to be procedural, specifying steps to be taken during the design activity. At the same time, it is recognized that experienced practitioners do not follow the step-wise procedures. So there is a need for further critical analysis and justification of the explicit methodologies and of actual design practices.

This point is reinforced by further criticisms of the design models that are available in the literature. One point of criticism is that some of the models come from the field of technical design, and do not deal with the specific characteristics of social design activities. Concepts such as decomposition and hierarchy of systems are difficult to apply to social design settings. The social world is characterized by a weak stability, and it is often not possible to test the design in practice settings, before its implementation. Another point of criticism is that the models are based on a hypothetical ideal situation, with unlimited resources, means, and time, and that they depart from unexperienced designers, who work step by step, while in reality, means are limited and designers are able to make 'short-cuts' because of their experience. Another drawback of these models is that they pay little attention to the social aspects of design.

Several authors have tried to reconceptualize the design process. Herbert A. Simon's analysis of design as a problem-solving activity (1969) has been particularly influential. It also has definite limitations, because of its cognitive focus, and its neglect of evolving professional practices. A less prescriptive approach is in order. For this reason, Donald Schön's book "The reflective practitioner" (1983) is taken as the starting-point to develop a design methodology for the social sciences. The empirical reconstruction of actual design practices will be guided by the concepts introduced by Schön. But it will be the findings of the empirical reconstructions that will guide the synthetic work of elaborating a design methodology, rather than adherence to Schön's perspective.

3. PROGRAM DESCRIPTION

3.1 Objective of the program

The objective of the research program is to establish the contours of a social scientific design methodology, that should:

- be general enough to cope with differences between the social sciences involved and yet should do justice to the variety of design approaches that are in practical use;

- be grounded in the reconstruction of professional design activities and practice as are common in the scientific fields involved;
- enable the establishment of normative models and prescriptions for social scientific design.

3.2. Planned research activities

In order to attain the program objective within five years, two main research activities are planned: the empirical reconstruction of design practices and elaboration of a design methodology. In addition, certain facets of design and design practices will be addressed.

3.2.1 Empirical reconstruction

Empirical reconstruction of current design practices within the social-science fields involved, as well as reconstruction of transfer of design knowledge and (proto-) methodology, will take a different shape depending on how far design approaches have been articulated already.

Detailed reconstructions of design practices are especially necessary in the fields of management science and communication science, for there is little articulation yet. Considerably more articulation has been done by the faculties of educational science and technology, and of public administration and public policy.

The empirical reconstruction will be done mainly by Ph.D students participating in the program (see section 4). While each of the Ph.D. students chooses reconstruction methods that are particularly suited for his/her research purpose and scientific field, they maintain a common perspective.

3.2.2 Facets of design practices

Particular aspects of design practices that appear to be pivotal for a social-science design methodology, have to be considered separately, in post-doc projects, through contributions from the staff participating in the program, and in dedicated workshops. Five of such facets have been identified at this stage:

- a The relationship between design and theory about society and human behavior.
- b The relationship between professional design practice (client oriented, contextualized) and design methodology (product oriented and (somewhat) decontextualized). Here, an important difference with the technical sciences appears; in the technical sciences clients are presumed to be interested in a product that will be delivered to them by scientists in their own terms. In the social sciences, clients think of themselves as knowledgeable about the issues even more than the knowledgeable social scientists.

- c The role of evaluation and, in general, more explicit feedback in reflective design practice and design methodologies.
- d The relationship between instrumentation and sociotechnical design. By addressing this topic, a bridge may be built between social and technical sciences, as technical sciences might offer some “social considerations” in their design practice.
- e Compositional and aesthetic aspects of design. Comparison with fields like architecture shows that social sciences cannot leave this aspect of design completely out of consideration.

3.2.3 Synthesis

The process of formulating a methodology involves several activities:

- a Elaboration of issues of philosophy of science and design, like “inference to the best design heuristic”.
- b Articulation of “grounded methodologies” based upon the empirical reconstructions of best practices, and available experience and insights of senior staff.
- c Elaboration and modifications of the “grounded methodologies”.

Thagard’s idea of a ‘reflective equilibrium’ (1988) will be used to develop normative principles from the description of best design practices.

3.3 Organization of the program

The research activities are organized in Ph.D. projects and post-doc projects. In addition, workshops and meetings are organized for all project members.

The program involves five Ph.D. projects, to be carried out in departments within the faculties of management studies, educational science and technology, public administration and public policy, and philosophy and social sciences. Two post-doc projects have been set up, on evaluation and design methodology, and on constitutional design. Topics for further post-doc projects are philosophy of science and design methodology, and epistemological aspects of design methodology.

Twice a year, workshops are planned for program participants and other interested persons. In 1994, workshops were held on “Articulation and Design Practice” and “Methods of Reconstruction”. The workshop of June 1995 will deal with the topics “What is design methodology” and “What final products are envisaged for the program?”.

Once a month, brown-bag lunches are organized, where guest speakers or participants are invited to speak about their experiences with design, with reconstruction studies, or with other relevant topics.

4. PARTICIPANTS AND ACTIVITIES

This section will give an overview of the participants of the program. In Section 4.1, a short description is given of the research areas of each of the participating faculties. Following, the names of the participants are given (Section 4.2).

4.1 Research areas of each faculty

4.1.1 Educational Science and Technology

The faculty of Educational Science and Technology investigates topics of educational technology. The research interests of the department of curriculum are in the development and evaluation of procedures for legitimation, design, evaluation, and implementation of curricula, including courseware, for general and vocational education and corporate training. The department holds special interest in the development and use of formative evaluation as a means to improve curricula and training and in implementation improving factors. The department of instrumentation aims at the design, integration and transfer of interactive materials for learning and communication. The research from the department of educational administration focuses on the organization and curriculum conditions of school effectiveness and school performance.

4.1.2 Management Studies

The faculty of Management Studies develops knowledge for professional designers in the field of management of technology and innovation. The department of Technology & Organization focuses on management of research & development, quality, production and innovation, and on concurrent engineering and continuous improvement. Research programs are aimed at continuity of organizations, innovation of production systems, and information technology.

4.1.3 Philosophy and Social Sciences

The two departments from the faculty of Philosophy and Social Sciences, that are involved in the program, are the department of Philosophy of Science and Technology and the department of Applied Linguistics. One of the cross-cutting interests in the research of the department of Philosophy of Science and Technology is design: philosophy of design, cases of design work and the emergence of stabilized design conceptions, changes that occur in design conceptions and practices, attempts to influence design processes at an early stage ("Constructive Technology Assessment"). The central aim of the research program of the department of applied linguistics is to develop methods for evaluating and optimising the quality of textual communication. With respect to the design of texts, the main focus in the program is on those aspects of design processes which

anticipate on the quality of the text. Text design processes are studied with respect to several types of texts.

4.1.4 **Public Administration and Public Policy**

The faculty of public administration and public policy focuses its activities on the design of legal systems and of public policies. With respect to the program, regarding the design of legal systems, the department will undertake a project on constitutional design which will consist of an analysis of the theory of constitutionalism and a reconstruction of change in the Dutch constitution of 1983. With respect to the design of public policies, a reconstruction process is foreseen of a rather complicated multi-actor design process of a recent policy in the field of higher education.

4.2 **Program participants**

(Acronyms/abbreviations are explained in appendix B)

4.2.1 **Program leaders**

- Prof. dr. J.C.M. Moonen (TO - ISM)
- Prof. dr. A. Rip (WMW - FWT)
- Prof. dr. F.A. van Vught (BSK - CSHOB)

4.2.2 **Program secretary**

- Dr. I.P.F. De Diana (TO - ISM)

4.2.3 **External scientific contributors to the program**

- Dr. J.A. Harbers (RUG)
- Prof. dr. P.J. van Strien (emeritus RUG)
- Prof. dr. P.G. Swanborn (UvA)
- Prof. dr. M. Zwanenburg (EUR)
- Advisor: Prof. D.A. Schön (MIT)

4.2.4 **Ph.D. students**

- Drs. R. Klaassen (WMW - TT)
- Ir. K. Visscher (TBK - T&O)
- Drs. J.I.A. Visscher-Voerman (TO - CRC)

4.2.5 Post docs

- Dr. A.J. Visscher (TO - O&M)
- Dr. W.G. Werner (BSK - B&B)

4.2.6 Other project participants

- Dr. J.J.H. van den Akker (TO - CRC)
- Dr. R.J. Bosker (TO - O&M)
- Dr. C. Disco (WMW - FWT)
- Prof. dr. ir. O.A.M. Fisscher (TBK - T&O)
- Dr. J. Geersing (TBK - OMST)
- Dr. T.M. van der Geest (WMW - TT)
- Prof. dr. J.M. Pieters (TO - IST)
- Prof. dr. Tj. Plomp (TO - CRC)
- Ir. I.O. van de Poel (WMW - FWT)
- Prof. mr. D.W.P. Ruiter (BSK - B&B)
- Prof. dr. J. Scheerens (TO - O&M)
- Prof. dr. P.J.M. Schellens (WMW - TT)
- Dr. M.F. Steehouder (WMW - TT)
- Dr. B. Steunenberg (BSK - O&F)
- Dr. D.F. Westerheijden (BSK - CSHOB)

The research team consists of an enthusiastic group of people, who are eager to learn from each other and other people outside the group. Therefore, reactions to this research program or reports on experience with reconstruction and design studies are welcome!

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6. APPENDIX A: Feasibility studies and later program papers

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7. APPENDIX B: Explanation of used acronyms

The used acronyms represent the following participating faculties and departments:

BSK	Public Administration and Public Policy
B&B	Government and Public Policy
CSHOB	Centre for Higher Education Policy Studies
O&F	Organization & Finances
TBK	Management Studies
OMST	Operational Methods and Systems Theory
T&O	Technology and Organization
TO	Educational Science and Technology
CRC	Curriculum
ISM	Educational Instrumentation
IST	Instructional Technology
O&M	Educational Administration
WMW	Philosophy and Social Sciences
FWT	Philosophy of Science and Technology
TT	Applied Linguistics

External contributors come from:

RUG University of Groningen

UvA University of Amsterdam

EUR Erasmus University Rotterdam

MIT Massachusetts Institute of Technology